

### **REMARKS**

Claims 4-6, 9, 12, 16 and 25 have been amended to more particularly point out and distinctly claim the subject matter Applicants regard as their invention. Claims 19 and 27 have been amended to correct typographical errors. Claims 10, 11, and 13 have been cancelled without prejudice or disclaimer. No new matter has been added. Now pending in the application are claims 1, 4-9, 12, 14-17, 19 and 21-33.

Amendment of any claim herein is not to be construed as an acquiescence to any of the rejection or objections set forth in the instant Office Action, and was done solely to expedite prosecution of the application. Applicant makes these amendments without prejudice to pursuing the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter.

#### Rejections under 35 U.S.C. §112, first paragraph

Claims 4-6 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. This rejection is traversed.

Claims 4-6 have been amended to recite that the thermally conductive polymeric material includes at least a specified percentage of the filler material. Applicants respectfully urge that the claims as amended fully comply with the requirements of 35 U.S.C. §112, first paragraph. Reconsideration and withdrawal of the rejection is proper and the same is requested.

#### Rejections under 35 U.S.C. §112, second paragraph

Claims 19 and 27-33 were rejected as being indefinite for being dependent upon a canceled claim. These claims have been amended to correct the claim dependencies, and Applicants submit that the claims, as amended, are not indefinite. Withdrawal of the rejection is proper and the same is requested.

Claim 25 was rejected as being indefinite. The Examiner states that the claim is directed to a solvent blending method, but that "[t]here is no solvent set forth in the claim." This rejection is traversed. Claim 25 has been amended to recite that the claimed method includes blending a thermally conductive fibrous filler with a polymeric material in a solvent and forming the thermally conductive polymeric

material. Applicants submit that this language is not indefinite or unclear and fully comply with the requirements of 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of the rejection is proper and such action is requested.

Rejections under 35 U.S.C. §102

Claims 9-16 stand rejected under 35 U.S.C. §102(e) as anticipated by McCullough, U.S. Patent No. 6,048,919. Claims 10, 11 and 13 have been cancelled and thus the rejection of those claims is moot. As to the remaining claims, Applicants respectfully contend that this rejection does not apply and should be withdrawn.

The McCullough patent appears to disclose conductive molding compositions including a polymer base matrix and a conductive filler. The McCullough patent does not appear to disclose a composition in which a thermally conductive filler material is a graphitized pitch-based carbon fiber as required by amended claims 9, 12, and 14-16. Applicants respectfully contend that the McCullough reference does not anticipate nor render obvious any of the pending claims. Reconsideration and withdrawal of the rejection is proper and the same is requested.

Claims 9, 15 and 16 stand rejected under 35 U.S.C. §102(e) as anticipated by Zhou, U.S. Patent No. 6,162,849. Applicants respectfully contend that this rejection does not apply to the pending claims and should be withdrawn.

The Zhou patent appears to disclose thermally conductive plastics including a base resin and a boron nitride filler. The Zhou patent does not appear to disclose a composition in which a thermally conductive filler material is a graphitized pitch-based carbon fiber, as required by amended claims 9, 15 and 16. Applicants respectfully contend that the Zhou reference does not anticipate nor render obvious any of the pending claims. Reconsideration and withdrawal of the rejection is proper and the same is requested.

Claims 9-12, 15 and 16 stand rejected under 35 U.S.C. §102(b) as anticipated by Barnes, U.S. Patent No. 5,001,184. Applicants respectfully contend that this rejection is improper and should be withdrawn.

The Barnes patent appears to disclose thermoplastic materials including a thermoplastic matrix polymer and at least 25% pitch based carbon filaments. However, Barnes does not disclose compositions including a second filler material. Thus, the compositions of Barnes are distinguishable from the claimed compositions. Accordingly, the Barnes reference does not anticipate nor render obvious any of the pending claims. Reconsideration and withdrawal of the rejection is proper and the same is requested.

#### Rejections under 35 U.S.C. §103

Claims 1, 4-6, 17 and 21-26 stand rejected under 35 U.S.C. §103(a) as unpatentable over Barnes, U.S. Patent No. 5,001,184. Applicants respectfully contend that this rejection is improper and should be withdrawn.

The Examiner states that the Barnes patent teaches “the use of the thermoplastic resin in ‘the form of a solution’ and further references a ‘solution impregnation process’.” The Examiner concludes that these alleged teachings render obvious the pending claims. Applicants do not agree.

The Barnes patent does state that the “supply of thermoplastic polymer in may be in the form of a solution, fine particles, or a melt” (see Col. 2, lines 24-25), but then goes on to state that:

In the case of a solution impregnation process impregnation is relatively easy at low concentrations of the polymer in solution but provision must be made for recovery of large volumes of solvent. More importantly, it is difficult to remove all the solvent from the finished composite.

Barnes patent at Col. 2, lines 32-37.

Thus, the Barnes patent teaches that solvent-based methods are undesirable, which teaches away from the solvent-based methods and compositions of claims 1, 4-6, 17 and 21-26. Moreover, the Barnes patent teaches that rovings of filaments are used to supply bands of mixed filaments which are pulled through an impregnation

means to coat the filaments with the thermoplastic. This process is distinguishable from the presently-claimed methods and compositions, in which a solvent is used to form a solution of the at least one thermoplastic polymeric material and thermally conductive filler material. One of ordinary skill in the art would not have been motivated to modify the teachings of Barnes to arrive at the claimed invention. Accordingly, the Barnes reference does not anticipate nor render obvious any of the pending claims.

Reconsideration and withdrawal of the rejection is proper and the same is requested.

Claims 1, 4-6, 17 and 21-26 stand rejected under 35 U.S.C. §103(a) as unpatentable over Kunimoto, U.S. Patent No. 4,810,419. Applicants respectfully contend that this rejection is improper and should be withdrawn.

The Examiner states that the Kunimoto patent teaches "thermoplastic matrix composite compositions having incorporated therein the claimed fibers." The Examiner further states that Kunimoto "suggests the use of the claimed solvents" and concludes that the claimed invention is obvious over the disclosure of Kunimoto. Applicants cannot agree.

The Kunimoto patent is directed to methods for forming polymeric materials having fibers dispersed therein by polymerization of an aromatic imide polyester material in a fiber-containing solution. Kunimoto states that "it is *essential* that the carbon fiber-containing slurry is admixed with the polymerization mixture containing the aromatic tetracarboxylic acid and diamine components *before the start* of the polymerization procedure" (see Col. 4, lines 51-55) (emphasis supplied). Therefore, Kunimoto does not teach or suggest a composition of claim 1, nor a method according to claim 17, 25 or 26 (or claims dependent upon these independent claims).

Moreover, Kunimoto states that the dispersion of large amounts of carbon fibers in a solution of an aromatic imide polymer or a precursor thereof is difficult (see, e.g., Col. 1, lines 34-45). In this respect Kunimoto appears to teach away from the presently-claimed invention.

One of ordinary skill in the art would not have been motivated to modify the teachings of Kunimoto to arrive at the claimed invention. Accordingly, the Kunimoto reference does not anticipate nor render obvious any of the pending claims.

Reconsideration and withdrawal of the rejection is proper and the same is requested.

Claims 7 and 8 stand rejected under 35 U.S.C. §103(a) as unpatentable over Kunimoto or Barnes further in view of Zhuo. Applicants respectfully contend that this rejection is improper and should be withdrawn.

The teachings of the cited references have been discussed above. The Examiner points Zhuo as a teaching the use of secondary fillers and states that "one of ordinary skill would find it prima facie obvious to use a secondary filler as shown in Zhuo in the compositions of Kunimoto et al. and Barnes et al." Applicants disagree. The deficiencies in the teachings of both Kunimoto and Barnes have been discussed above. The Examiner's citation of Zhuo as teaching secondary fillers does not remedy the deficiencies in the primary reference teachings. Zhuo does not and cannot bridge the gap between the teachings of Kunimoto or Barnes and therefore cannot render obvious the pending claims, whether the references are taken alone or in combination.

Reconsideration and withdrawal of the rejection is proper and the same is requested.

### **CONCLUSION**

Reconsideration and allowance of claims 1, 4-9, 12, 14-17, 19, and 21-33 is respectfully requested in view of the foregoing discussion. This case is believed to be in condition for immediate allowance. Applicant respectfully requests early consideration and allowance of the subject application.

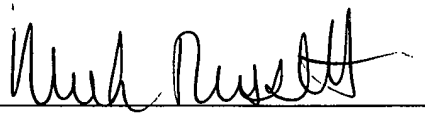
Applicants conditionally petition for an extension of time to provide for the possibility that such a petition has been inadvertently overlooked and is required. As provided below charge Deposit Account No. **04-1105** for any required fee.

Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned attorneys would appreciate the opportunity to do so.

Respectfully submitted,

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